OPTIMUM®
MASCHINEN - GERMANY

Operating Manual

Version 1.1.1

Index plates

IT 200

1 Scope of application

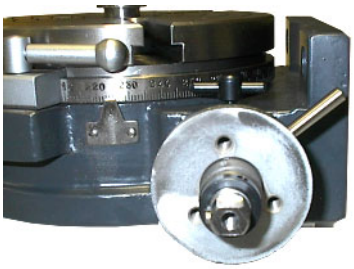
The index plates are used in dividing attachments for plain dividing.

2 Extent of supply IT 200

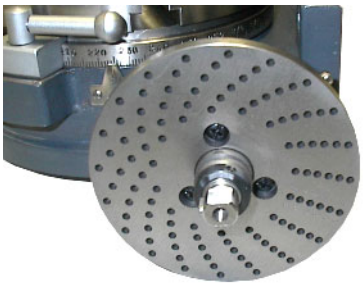
- O 2 pc. index plates (provided with pitch circles on both sides)
- O Sector arm
- O Dividing shear with spring steel plate

3 Assembly

Assembling the index plate on the dividing attachment.

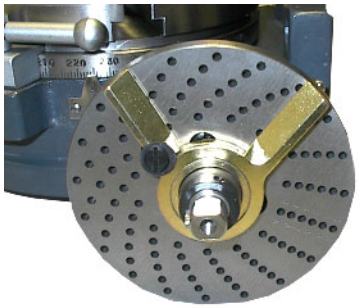


→ Detach the handwheel.

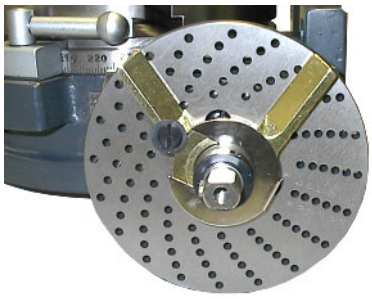


→ Place the index plate on the shaft.

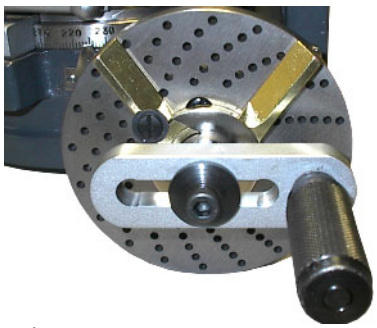
→ Fit the index plate in place using the screws.



→ Place the dividing shear on the shaft.



→ Attach the dividing shear with the spring steel plate.



→ Attach the sector arm.

4 Index plate types IT 200

Index plate	Pitch circle [T] , number of bore holes on the pitch circle
A 1	28 , 32 , 37 , 39 , 43 , 46, 49, 53 , 59
A 2	26 , 30 , 34 , 38 , 41 , 44 , 47 , 51 , 57
B1	61 , 67 , 71 , 77 , 81 , 87 , 91 , 97
B 2	63 , 69 , 73 , 79 , 83 , 89 , 93 , 99

5 Pitch circle calculation

Transmission ratio [i]

Number of divisions [D]

Number of circles,
where the number is a simple fraction, a compound fraction or an integer. [n_k]

Angular degrees [α]

5.1 Examples of pitch circle calculation

Example 1:

i = 90

D = 45

$$n_k = \frac{90}{45} = 2$$

In order to obtain 45 divisions on the circumference of the workpiece, the dividing crank has to be turned 2 full circles for each section.

Example 2:

i = 90

α = 23° angular degrees

$$n_k = \frac{\alpha \times i}{360°} = \frac{23° x 90}{360°} = 5,75 = 5\frac{3}{4} = 5\frac{15}{20}$$

In order to obtain divisions with 23° angular degrees each on the circumference of the workpiece, the dividing crank has to be turned 5 full circles and 15 hole pitches on the index plate A with 20 bore holes on the pitch circle for each section.

Example 3:

i = 90

D = 128

$$n_k = \frac{i}{T} = \frac{90}{130} = \frac{9}{13} = \frac{18}{26} = \frac{27}{39}$$

In order to obtain 130 divisions on the circumference of the workpiece, the dividing crank has to be turned 27 bore holes on the index plate with 39 bore holes for each section.

INFORMATION

The table below gives possible divisions for each index plate.

If necessary, use a calculator for divsions of over 450 . Re-calculate the decimal result shown on the calculator as a fraction.

6 Change information operating manual

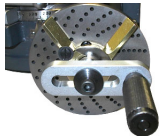
Chapter	Short summary	new version number
All	Layout	1.1.1

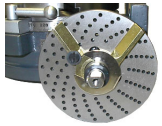
IT200_Tabelle_GB.fm

7 Pitch circle table IT 200

INFORMATION

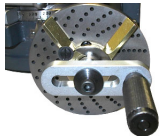
If the divisions you want are not included in the following tables, you must have an index head with an optional compensating division installed.

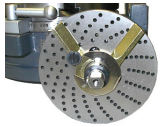




		Valid for transmission ratio 90 : 1																																	
Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
1	90																																		
2	45																																		
3	30																																		
4	22	13	14	15	16	17		19				22	23																						
5	18																																		
6	15																																		
7	12		24												42						54					66						78			
8	11		7		8							11																							
9	10																																		
10	9																																		
11	8											8														14									18
12	7	13	14	15	16	17		19				22	23																						
13	6	24							36																							84			
14	6		12												21						27					33						39			
15	6																																		
16	5				20																														
17	5					10										15																			
18	5																																		
19	4							28										42																	
20	4	13	14	15	16	17		19				22	23																						

OPTIMUM®
MASCHINEN - GERMANY



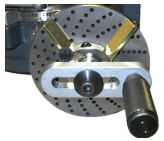


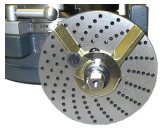
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
21	4		8												14						18					22						26			
22	4											4														7									9
23	3												42										63												
24	3		21		24							33																							
25	3			18																															
26	3	12							18																							42			
27	3			10					13							17		19			21		23					27		29			31		33
28	3		6																																
29	3																													9					
30	3																																		
31	2																																84		
32	2				26																														
33	2											32														56									72
34	2					22										33																			
35	2		16												28						36					44						52			
36	2	13	14	15	16	17		19				22	23																						
37	2						16																												
38	2							14										21																	
39	2	8							12																							28			
40	2		7		8							11																							
41	2									8																									
42	2		4												7						9					11						13			
43	2										4																								
44	2											2																							
45	2																																		

IT200_Tabelle_GB.fm

OPTIMUM® MASCHINEN - GERMANY



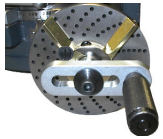


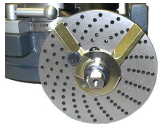
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
46	1												44										66												
47	1													43																					
48	1				28																														
49	1														41																				
50	1			24																															
51	1					26										39																			
52	1	19																																	
53	1																37																		
54	1			20					26							34		38			42		46					54		58			62		66
55	1											28														49									63
56	1		17																																
57	1							22										33																	
58	1																													48					
59	1																		31																
60	1	13	14	15	16	17		19				22	23																						
61	1																			29															
62	1																																42		
63	1		12												21						27					33						39			
64	1				13																														
65	1	10							15																							35			
66	1											16														28									36
67	1																					23													
68	1					11																													
69	1												14										21												
70	1		8												14						18					22						26			

IT200_Tabelle_GB.fm

OPTIMUM®
MASCHINEN - GERMANY



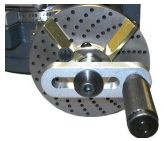


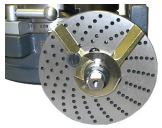
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																		
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
71	1																							19											
72	1		7		8							11																							
73	1																								17										
74	1						8																												
75	1			6																															
76	1							7																											
77	1																									13									
78	1	4							6																							14			
79	1																										11								
80	1				4																														
81	1																				7							9							11
82	1									4																									
83	1																												7						
84	1		2																																
85	1					2										3																			
86	1										2																								
87	1																													3					
88	1											1																							
89	1																														1				
90	1																																		
91	0																															90			
92	0												45																						
93	0																																90		
94	0													45																					
95	0							36										54																	

IT200_Tabelle_GB.fm

OPTIMUM® MASCHINEN - GERMANY

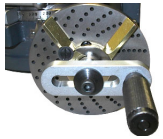


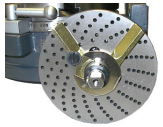


Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
96	0				30																														
97	0																																	90	
98	0														45																				
99	0											40														70									90
100	0			27																															
102	0					30										45																			
105	0		24												42						54					66						78			
106	0																45																		
108	0			25																															
110	0											36														63									81
111	0						30																												
114	0							30										45																	
115	0												36										54												
117	0	20							30																							70			
118	0																		45																
120	0		21		24							33																							
122	0																			45															
123	0									30																									
126	0		20												35						45					55						65			
129	0										30																								
130	0	18							27																							63			
132	0											30																							
134	0																					45													
135	0			20					26							34		38			42		46					54		58			62		66
138	0												30										45												

OPTIMUM®
MASCHINEN - GERMANY



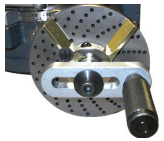


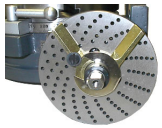
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																		
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
140	0		18																																	
141	0													30																						
142	0																							45												
144	0				20																															
145	0																													54						
146	0																								45											
147	0														30																					
150	0			18																																
153	0					20										30																				
154	0																									45										
155	0																																54			
156	0	15																																		
158	0																										45									
159	0																30																			
160	0				18																															
162	0																				35							45								55
165	0											24														42										54
166	0																												45							
168	0		15																																	
170	0					18										27																				
171	0							20										30																		
174	0																													45						
177	0																		30																	
178	0																														45					
180	0	13	14	15	16	17		19				22	23																							

IT200_Tabelle_GB.fm

OPTIMUM® MASCHINEN - GERMANY



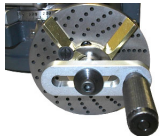


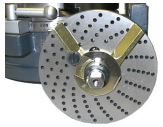
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
182	0																															45			
183	0																			30															
185	0						18																												
186	0																																45		
189	0																				30														
190	0							18										27																	
192	0				15																														
194	0																																	45	
195	0	12							18																							42			
198	0											20														35									45
201	0																					30													
203	0																																	43	
204	0					15																													
205	0									18																									
207	0												20										30												
210	0		12												21						27					33						39			
213	0																							30											
215	0										18																								
217	0									17																									
219	0																								30										
220	0											18																							
222	0						15																												
223	0																	23																	
225	0			12																															
228	0							15																											

IT200_Tabelle_GB.fm

OPTIMUM®
MASCHINEN - GERMANY



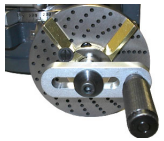


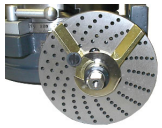
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																		
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
229	0		11																																	
230	0												18										27													
231	0																									30										
233	0											17																								
234	0	10							15																							35				
235	0													18																						
237	0																										30									
239	0																									29										
240	0				12																															
241	0																												31							
243	0																											30								
245	0														18																					
246	0									15																										
249	0																												30							
251	0																19																			
252	0		10																																	
255	0					12										18																				
258	0										15																									
260	0	9																																		
261	0																													30						
263	0							13																												
264	0											15																								
265	0																18																			
267	0																														30					
270	0			10					13							17		19			21		23					27		29			31		33

IT200_Tabelle_GB.fm

OPTIMUM® MASCHINEN - GERMANY



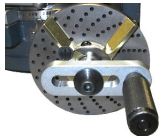


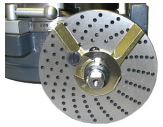
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
273	0																															30			
276	0												15																						
279	0																																30		
280	0		9																																
282	0													15																					
285	0							12										18																	
288	0				10																														
289	0																			19															
290	0																													27					
291	0																																	30	
294	0														15																				
295	0																		18																
297	0																																		30
300	0			9																															
301	0																																	29	
305	0																			18															
306	0					10										15																			
310	0																																27		
311	0							11																											
315	0		8												14						18					22						26			
317	0																											23							
318	0																15																		
319	0								11																										
320	0				9																														
323	0																			17															

IT200_Tabelle_GB.fm

OPTIMUM®
MASCHINEN - GERMANY



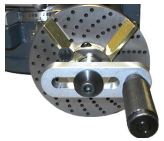


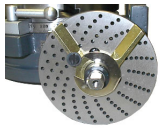
Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																		
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
330	0											12														21									27
333	0						10																												
335	0																					18													
340	0					9																													
342	0							10										15																	
345	0												12										18												
351	0								10																										
353	0															13																			
354	0																		15																
355	0																							18											
360	0		7		8							11																							
365	0																								18										
366	0																			15															
367	0																13																		
369	0									10																									
370	0						9																												
378	0																				15														
380	0							9																											
385	0																									18									
387	0										10																								
390	0	6							9																							21			
395	0																										18								
396	0											10																							
401	0														11																				
402	0																					15													

IT200_Tabelle_GB.fm

OPTIMUM®
MASCHINEN - GERMANY

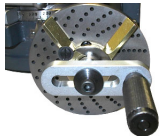


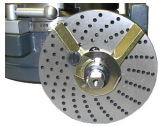


Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
405	0																				14							18							22
410	0									9																									
412	0																													19					
414	0												10										15												
415	0																												18						
416	0						8																												
420	0		6																																
423	0													10																					
426	0																							15											
430	0										9																								
431	0																															19			
433	0																									16									
435	0																													18					
436	0																				13														
437	0					7																													
438	0																								15										
439	0								8																										
440	0											9																							
441	0														10																				
445	0																														18				
450	0			6																															
455	0																															18			
459	0															10																			
460	0												9																						
461	0									8																									

OPTIMUM®
MASCHINEN - GERMANY





Valid for transmission ratio 90 : 1

Division	Circles	Pitch circle																																	
		26	28	30	32	34	37	38	39	41	43	44	46	47	49	51	53	57	59	61	63	67	69	71	73	77	79	81	83	87	89	91	93	97	99
462	0																									15									
464	0																					13													
465	0																																18		

OPTIMUM®
MASCHINEN - GERMANY